SPHENOPHYLLUM NYMANENSIS SP. NOV. FROM THE UPPER PENNSYLVANIAN[1]

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While coal is not found in commercial quantities in Nebraska, there are a number of thin seams exposed in the southeastern counties of the state, and investigation of these has proved to be quite profitable from a paleo-botanical viewpoint. In the majority of sites investigated, a layer of limestone immediately above the coal has precluded the finding of anything but highly coalified fossils. However, in the clay pit of the Western Brick Company at Nebraska City in Otoe County, the exposed Nyman coal shales out, and plant fossils are abundant. Plant material is so abundant in fact that the specimens, frequently with cuticle intact, are almost impossible to separate. It was from this site that representatives of the Pennsylvanian Sphenopsida of the order Sphenophyllales, including the present *Sphenophyllum*, were collected.

According to Condra and Reed (1943), the Nyman coal is found toward the top of the Langdon shale formation of the Richardson Subgroup, Wabaunsee Group, Virgil Series of the Pennsylvanian Sub-system. In part of the clay pit, as in the other sites mentioned above, the Nyman coal lies immediately below the Dover limestone. As the coal begins to shale out, the plant remains are separated by such minute quantities of shale as to be almost impossible to recover. However, as shaling continues, and the amount of shale increases, the plant remains are more readily defined. Preservation is very good in the fine sediment, and, as reported by Barbour (1914), many compressions retain their cuticular coverings which may be floated free, cleared, and mounted for study.

In the deposit, specimens of *Sphenophyllum* are fairly common, although few show more than two or three nodes. *Sphenophyllum cuneifolium* Sternb., *S. emarginatum* Brong. and *S. majus* Brong. are represented, as well as another large-leaved taxon which was at first considered to be a variant of *S. majus*. Closer examination, and a comparison of a number of these large-leaved specimens with specimens of *S. majus* indicate that two taxa are involved, and the name *Sphenophyllum nymanensis* is hereby proposed for the novelty.

Sphenophyllum nymanensis sp. nov. (Fig. 1) Leaves in whorls of 6 per node, 12–17 mm. long, 5–10 mm. wide; veins branching 3–5 times from the base, terminating at the rounded to somewhat truncate apex; stems fairly robust for a *Sphenophyllum*, about 2 mm. in diameter, with nodes swollen to 3 mm.; internodes subequalling the leaf length, 12–17 mm. long.

Locality. Clay pit, Western Brick Company, Nebraska City, Otoe County, Nebraska.

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Horizon. Nyman coal, and Langdon shale above, Virgil Series, Upper Pennsylvanian.

Type. Paleobotanical collection, University of Nebraska State Museum.

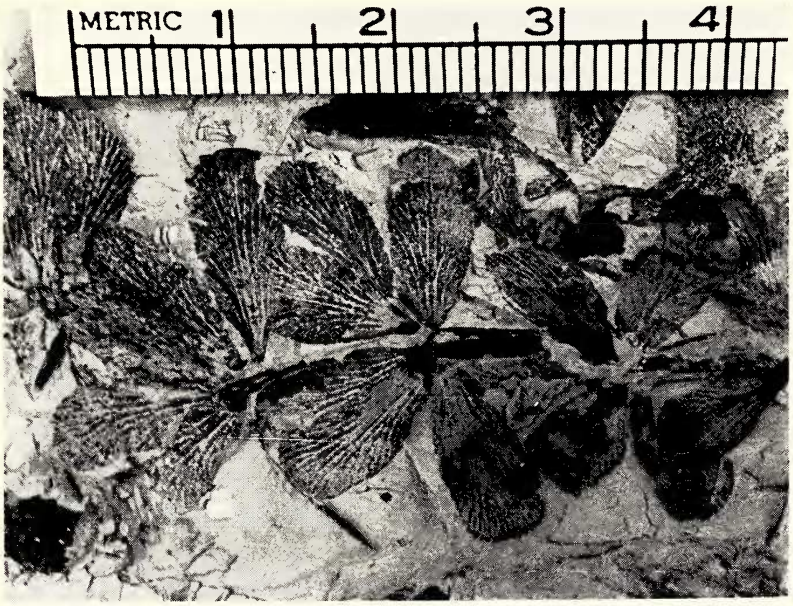

Fig. 1. *Sphenophyllum nymanensis* J. F. Davidson.

Sphenopyllum nymanensis, in terms of size most closely resembles *S. majus* from which it is readily distinguished by the following characters:

S. nymanensis	*S. majus*
6 leaves per node	8–10 leaves per node
leaf apex rounded to slightly truncate	leaf apex truncate
leaf margin entire	leaf margin with each vein terminating in a small deltoid tooth.

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Literature Cited

Barbour, E. H. 1914. Plant tissue in the Carboniferous shales of Nebraska. Nebr. Geol. Surv. 4, part 16, pp. 231–232.

Condra, G. E. and E. C. Reed. 1943. The geological section of Nebraska. Nebr. Geol. Surv. Bull. 14.